

PNEUMATIC SEED DRILL

XD 4200 M1

OPERATOR MANUAL



PLEASE READ CAREFULLY BEFORE COMMISSIONING!

Translation of the original operating manual

Version: 3.0 EN; item number: 00603-3-377



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EC Declaration of Conformity

Manufacturer: **APV – Technische Produkte GmbH**
Dallein 62
AT - 3753 Hötzelstdorf

hereby declares that the mounted implement series described in the following complies with the applicable basic safety and health requirements of the above-mentioned Directives in terms of its concept and design as well as the versions put on the market.

This declaration loses its validity if there are any changes to the implement that are not approved by **APV – Technische Produkte GmbH**.

Name of the mounted implement series: **Pneumatic Seed Drill Fertilizer Edition**
XD 4200 M1
Electric control

Year of manufacture: from 2024

Serial number: Starting from 15002-01000

Relevant Directives: 2006/42/EC EC Machinery Directive
2014/30/EU EMC Directive

For the planing, design, construction and marketing of the implement, the following harmonised European standards were applied:

EN ISO 12100:2010	Safety of machinery – General principles for design; risk assessment and risk reduction
EN 60204-1:2018	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
EN ISO 14120:2015	Safety of machinery – Guards
EN ISO 13857:2019	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 4254-1:2022	Safety requirements for agricultural machinery – Part 1: General requirements
EN ISO 4254-9:2018	Agricultural machinery - Safety - Part 9: Seed drills

The special technical documents belonging to the implement in accordance with Appendix VII, Part A have been prepared.

Responsible for the technical documentation: APV - Technische Produkte GmbH

Dallein / Hötzelstdorf, 07/2024

Ing. Jürgen Schöls
Managing Director (authorised person in the EU)

1 IDENTIFICATION OF THE IMPLEMENT

The seeder/spreader can be clearly identified by the following information on the type plate:

- Designation
- Model
- Production number

Position of the type plate

The type plate can be found on the side of the hopper.

The following image (Figure 1) shows the layout of the type plate.



Figure 1

The data on the type plate have the following meaning:

- 1: Designation
- 2: Model
- 3: Production number / serial number
- 4: Weight
- 5: Year of manufacture



NOTE!

In cases of inquiries or warranty claims, please always tell us the production number/serial number of your implement.

2 SERVICE

Please contact our service address in the following cases:

- If you still have questions regarding the handling of this implement despite the information provided in this operating manual.
- For questions regarding spare parts.
- To order maintenance and servicing work.

Service address:

APV - Technische Produkte GmbH
Zentrale: Dallein 62
A-3753 Hötelsdorf
AUSTRIA

Telephone: +43 2913 8001-5500
Fax: +43 2913 8002
E-mail: service@apv.at
Web: www.apv.at

3 WARRANTY

Please check the implement for any transport damage immediately upon receipt. Later claims regarding transport damage can no longer be considered.

APV grants a six-month factory warranty starting on the date of initial operation. This warranty is applicable for cases of material or construction faults and does not include parts that are damaged by normal or excessive wear.

The warranty expires

- if damage is caused by external forces.
- in cases of operating errors.
- if the prescribed requirements are not met.

- if the implement is modified, expanded or equipped with third-party spare parts without our permission.
- if the implement is cleaned with water.
- if the spreader is used for snow and ice removal.

4 SAFETY INSTRUCTIONS

This chapter contains general rules of conduct for the intended use of the implement and safety-related information that should always be observed for your safety.

The list is very extensive, and some of the information does not apply exclusively to the delivered implement. However, the summary of the information often reminds you of unconsciously neglected safety regulations for the everyday operation of machines and implements.

4.1 INTENDED USE

The implement is designed solely for normal use in agricultural operations. It is used to spread granular spreading material (seed, fertiliser) only agricultural fields.

Any use beyond that is deemed to be improper. The manufacturer is not liable for any resulting damage, the operator alone bears the associated risk.

Intended use also includes compliance with the conditions for operation, maintenance, and repairs prescribed by the manufacturer.

Examples of **non-intended** use include:

- Use of the implement in the rain or storms.
- Use of the implement for snow and ice removal.

The implement may only be used, maintained and repaired by persons who have relevant experience and were instructed on the risks. The safety instructions must also be handed over to other users.

The applicable, country-specific accident prevention regulations as well as the other generally safety-related, occupational health and road traffic regulations must also be observed.

The manufacturer is not liable for any damage resulting from unauthorised modifications and the use of components and auxiliary parts.

4.2 GENERAL SAFETY-RELATED INSTRUCTIONS AND ACCIDENT PREVENTION REGULATIONS

- Keep your distance when the implement is switched on!
- The warning and information signs applied to the implement provide important instructions for safe operation. These may not be removed in any case, observe them for the sake of your own safety!
- There are pinch and shear points on externally powered (e.g. hydraulic) parts!
- Some parts have stickers warning about high temperatures. When working on these parts when they are hot, safety gloves must be worn.
- Triggers for fast couplers must be hanging loosely and must not trigger themselves when lowered.
- Observe the generally applicable safety and accident prevention regulations for the respective country!
- Observe the warning information provided by the manufacturer on the packaging. The seed and spreading material used with your implement can be toxic!
- Observe the respective country-specific road traffic regulations when using public roads!
- When driving through low or narrow obstacles (e.g. power lines, underpasses, etc.), attention must be paid to the height and width of the implement to avoid collisions.
- On implements with manual folding, always ensure that the implement is stable!

- In case of loss or breakage of implement parts, they must be immediately replaced with original parts by trained specialist personnel.
- When filling the seeder/spreader, never stand under a suspended load!
- When driving up to the implement with seed and spreading material, nobody may be standing on or around the seeder/spreader.
- Do not use the implement if you are tired or under the influence of drugs, alcohol or medication.
- The seeder/spreader is filled using a supply vehicle.
- The implement may only be used on agricultural fields. It may not be used on normal road surfaces, on asphalt or concrete. In particular, the implement may not be used in the building industry on construction sites, for winter services, for road construction, or for underground mining.
- The implement may only be used by persons who are informed of the hazards and who know the regulations for transport on public roads.
- The implement must be checked regularly by the operator (before every use) for any fractures and cracks, chafe marks, leaks, loose bolts and connections, vibrations, unusual sounds, and for proper function.
- The implement is intended for outdoor operation in dry weather, within a temperature range from +5 °C to 40 °C. Water penetration must be avoided. The implement must not be used in rain, thunderstorms and/or stormy conditions and it must be parked under a shelter.
- The platform kit may not be used to fill the seeder/spreader or as a storage area for objects or seed and spreading material.
- Accessories must be mounted in compliance with the standards by qualified specialist personnel from an authorised company.
- The operator must ensure that no one is standing in the vicinity of the seeder/spreader when it or its components are being moved by the tractor's hydraulic system. The driver/operator must perform a visual check!
- The operator has read and understood this operating manual before handling the implement.
- The operator must train and instruct their personnel. The personnel must have read and understood this operating manual before handling the implement.
- The general accident prevention regulations of the respective countries must be observed.
- The user should wear close-fitting clothing. Avoid wearing loose clothes!
- When performing the field passes, the tractor's speed must be maintained as specified in the operating manual. This can be between 1 and 20 km/h depending on the seed and spreading material.
- Protective goggles, hearing protection and safety shoes with non-slip soles must be worn.
- Never, under any circumstances, reach into the seeding shafts.
- When passing on the implement, ensure that you also pass on the operating manual.
- Always keep the operating manual close to the implement for reference purposes.
- Inspections before, during and after operation as well as regular care, maintenance and servicing of the implement must be performed.
- Never look into the radar sensor!
- Never look into the spreading cone!
- Always keep hands, clothing etc. away from rotating parts!
- Product remains should be returned to the original packaging. Residues must not be released into the environment.
- Working under the implement is forbidden, especially when it is lifted.
- During the loading procedure, avoid any contact with the treated seed or spreading material and wear gloves, a dust mask and safety goggles.
- Before starting work, you should get to know all of the equipment and operating elements as well as their functions. It is too late to do so during operation!
- Check the immediate surroundings and danger areas (children) before starting up and operating the implement! Ensure that you have an adequate view!
- Before exiting the tractor, lower the implement onto the ground, switch off the motor and remove the ignition key!
- Check the implement and the tractor for road and operational safety before every use (e.g. defective parts, connections, fastenings, hoses, protective equipment, etc.)!

- Never leave the driver's platform while driving!
- To reduce the risk of fire, keep the machines clean. It is also recommended to carry a fire extinguisher on the tractor.
- Standing between the tractor and the implement is forbidden unless the vehicle is secured against rolling away using the parking brake and/or with wheel chocks!

4.3 MOUNTED IMPLEMENTS

- People must not be carried on the implement during intended use on agricultural land and when driving on roads.
- Do not stand between the tractor and the implement when actuating the external controls for the three-point mounting!
- When implement parts are moving (e.g. during the folding or pre-tensioning procedure) it must be ensured that there is no one standing in the danger zone of the implement – there is a risk of crushing.
- When mounting the implement, the hydraulic connections to the tractor hydraulic system must be connected carefully according to the operating manual.
- When mounting the implement, the operator must connect it to the tractor or vehicle with a metal connection and if necessary, a grounding cable.
- When mounting the implement, the operator must ensure that the requirements for the tractor in terms of the power, total weight, transport dimensions, axle loads and weight distribution are met as specified in the operating manual, and that the connections specified in the operating instructions are made correctly.
- When driving on roads, which is only permitted with the implement lifted and with folded side wings/side frames, the control block on the hydraulic cylinder prevents lowering of the implement as well as of the folded up side wings/side frames (additionally secured with a chain). The secured chain also prevents accidental lowering of the side frame during road transport in case of failure of the tractor hydraulic system.
- When driving in curves, take account of the wide radius and/or the centrifugal mass of the implement! Pay attention when turning the tractor!
- For implements that are driven rapidly with soil-driven tools: Danger after lifting due to the still rotating centrifugal mass! Only approach the implement when it has come to a standstill!
- When driving on roads with the implement lifted, the operating lever must be locked against lowering!
- When mounting and dismounting, put the support devices in their respective positions (stability)!
- Special care must be taken when coupling and uncoupling implements to and from the tractor! Use only self-locking attachments (nuts) as well as high-tensile bolts.
- When filling the implement, the seed or spreading material must always be emptied through the charging sieve to prevent damage to the agitating and seeding shaft.
- For three-point mounting, the mounting categories of the tractor and the implement must match or be adapted!
- The implement may only be transported on public roads when it is empty.
- It is not allowed to carry passengers on the implement during operation and transport!
- It is forbidden to transport working materials on the implement!
- Mounting of any sort of accessories onto the implement must be performed according to standards. The maximum permitted mounted weight / total weight of the implement must not be exceeded.
- It is forbidden to stand in the working area of the implement!
- The operator must ensure that the implement cannot lower when driving on the roads (shut-off valve on the tractor's hydraulic system or similar).
- An ascent to the implement must be established conforming to the standards. This ascent is available from APV.
- When mounting the implement, the operator must ensure that connections to the tractor hydraulic system are clean and carefully connected.
- The instructions concerning assembly as well as the requirements concerning the tractor as specified in the operating manual are to be observed.
- The view on the mounted seeder/spreader and the hazardous movement area must be clear to check the procedure.
- Folded frames and lifting devices must be locked in transport position!

- The driving behaviour, steering and braking capacity are affected by mounted or towed implements and ballast weights. For this reason, always ensure sufficient steering and braking capacity!
- Always secure the parked implement against unintentional rolling.
- The implement may only be operated when all of the protective devices are installed and in safety position!
- The implement must be coupled according to the instructions and only onto the specified devices!
- Always attach ballast weights at the intended attachment points according to the specifications!
- Hydraulic folding frames may only be actuated when nobody is standing in the swivelling range.
- There is a risk of injury due to crushing and shearing points in the area of the three-point linkage!
- When the implement is in transport position, always ensure that the tractor three-point linkage is sufficiently locked to the sides! If necessary, brace the lower link to prevent oscillation of the seeder/spreader.
- Do not stand near rotating and swivelling parts of the implement!
- Packer hooks must be swivelled in and locked before road transport!
- Lock the track markers in transport position!
- Transport equipment, e.g. lighting, warning signs and any protective equipment, must be checked and mounted!
- Before mounting and dismounting implements on the three-point linkage, the operating devices must be moved into the correct position that excludes unintentional lifting or lowering!
- Before each use, check the folding device and its securing elements for proper function and effect.
- When using the platform kit, it must be ensured that the implement is at a standstill, lowered onto the ground, and unfolded.
- When using a mounted implement, all of the specifications of the implement manufacturer must be observed.
- Check the stability of the tractor and the implement when mounting, operating, and performing maintenance/filling.
- When filling the hopper with slug pellets or similar toxic agents, only fill as much as is needed in the near future. Protective clothing, safety gloves, and face and eye protection must be worn during the filling procedure.
- When filling the seeder/spreader, never stand under a suspended load!
- When driving up to the seeder/spreader, nobody may be standing on or around the implement.
- The implement may only be climbed onto when a platform kit is installed.
- The seeder/spreader is filled using a supply vehicle.
- The platform kit may not be used to fill the seeder/spreader or as a storage area for objects or seed and spreading material.
- The seeder/spreader can be easily reached with using a ladder and platform. They must be clean and dry during use.
- The spread rate may only be adjusted in compliance with the operating manual and by trained personnel!
- When not in use, the ladder must be folded up and secured.
- The quantity of seed and spreading material and the selection of the lateral distribution must comply with the country-specific regulations and are the sole responsibility of the operator.
- No other persons may be in the hazard area of the seeder/spreader. The driver must perform a visual inspection!
- You may only reach into the spreading disc area when the drive is switched off and the motor and the spreading disc have come to a stop.
- Authorised crop protection products are not known to have negative effects on the materials of the implement.
- The selected fan speed should not be too high.
- During the loading procedure, avoid any contact with the treated seed and spreading material and wear gloves, a dust mask and safety glasses.
- It is strictly forbidden to stand on the platform or its access ladder while driving.
- Only APV implements and accessories may be mounted on the implement.

4.4 HYDRAULIC SYSTEM

- Due to the risk of injury, use suitable tools when searching for leaks!
- For hydraulic function connections between the tractor and the seeder/spreader, coupling sleeves and coupling plugs should be marked to rule out operating errors! If the connections are interchanged, there will be an inverse function (e.g. lifting/lowering) and/or certain destruction of the hydraulic motor! – Danger of accident!
- When connecting hydraulic cylinders and motors, the specified connection of the hydraulic hoses must be observed.
- When connecting the hydraulic hoses to the tractor hydraulic system, make sure that the hydraulic system on the tractor and implement side is unpressurised!
- Dust deposits on the hydraulic motor must be prevented - clean if necessary.
- It must be ensured that the hydraulic couplings are not soiled.
- The hydraulic system is under high pressure!
- Liquids escaping under high pressure (hydraulic oil) can penetrate skin and cause serious injuries! In the event of injury, seek medical advice immediately. (Risk of infection!)
- Before working on the hydraulic system, park the implement, depressurize the system and switch off the motor!

4.5 MAINTENANCE

- When performing electrical welding work on the tractor and mounted implement, disconnect the cable on the generator and the battery! The repair areas must be cleaned (risk of ignition if there is soiling)!
- Additional lighting (e.g., flashlight) should be used for repair or maintenance work if necessary.
- It must be replaced immediately before working with the implement in case of damage.
- When performing maintenance on the lifted implement, always ensure safety against lowering through suitable support elements!
- Use suitable tools and gloves that are cut-resistant when replacing work tools with sharp edges!
- Replacing components that cannot be removed with tools such as a screwdriver or wrench may only be replaced by qualified specialist personnel from an appropriately authorised company or by APV Customer Service.
- Do not clean the seeder/spreader with water. It is recommended to clean the implement with compressed air (outside only). While doing this, personal protective equipment should be worn if necessary.
- Cleaning, maintenance, and servicing work must be performed with the implement lowered, engine switched off, and safeguarded to prevent it from being switched on again.
- The maintenance work itself may only be performed by trained specialist personnel and may never be performed alone. Extreme caution must be taken when changing defective components or tools.
- Spare parts must at least comply with the technical requirements specified by the implement manufacturer! This is ensured with original parts!
- Cleaning is recommended as specified in the maintenance manual. The procedure in the maintenance instruction must be observed and protective equipment must be used.
- Maintenance, repair, and cleaning work as well as the elimination of malfunctions should always be performed when the drive is switched off and the motor is at a standstill and the implement is uncoupled from the towing vehicle! Remove the ignition key! Check to ensure that there is no voltage!
- Properly dispose of oils, greases, and filters in accordance with national regulations!
- The mounted implement must always be disconnected from the towing vehicle for service or maintenance tasks. If repairs or maintenance are required on the implement that can only be performed in conjunction with the towing vehicle, this work must be identified by a clearly visible information sign "Caution: maintenance work".
- Always cut the power supply when working on the electrical system!
- Do not get too close to the implement during this time. Work can only be performed when it comes to a complete standstill.



CAUTION!
Misprints, errors and omissions excepted.

5 INFORMATION SIGNS / HAZARD LABELS

Pay special attention to the stickers on the implement, as they warn you of specific dangers!

5.1 INFORMATION SIGNS



Read and observe the operating manual before operating the implement!



Be careful with escaping high-pressure liquids!
Observe the instructions in the operating manual!



Loading hooks.
When loading the implement, attach the ropes or chains to these points!



Read and observe the operating manual before operating the implement!



Operating errors can lead to serious injuries!



Use hearing protection!



Use hearing protection!



Only operate the implement when the cover is installed!

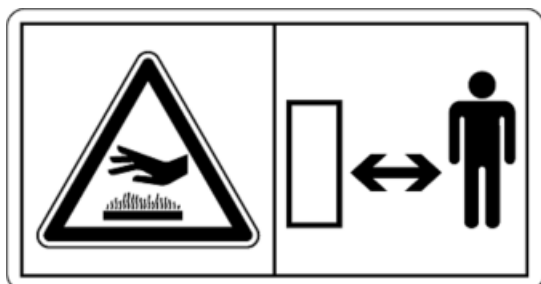


Be careful with escaping high-pressure liquids!
Observe the instructions in the operating manual!



Danger due to thrown parts;
Observe the safety distance!

5.2 HAZARD LABELS



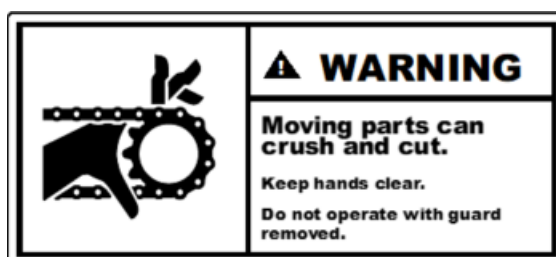
Maintain a safe distance from hot surfaces!



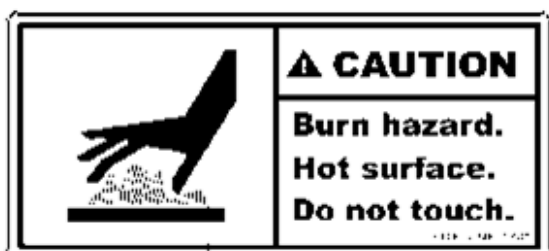
Danger due to thrown parts; observe the safety distance!



Never open or remove safety guards when the engine is running!



Risk of injury due to rotating parts. Only work with mounted covers!



Hot surface!
Do not touch!

6 OPERATING MANUAL

6.1 LAYOUT AND MODE OF OPERATION

The XD 4200 M1 is a seeder/spreader with a capacity of 4200 litres. System pressure is applied to the hopper for spreading fertiliser, which ensures optimum spreading. At the same time, it causes a reduction in the energy consumption of the self-propelled machine.

The machine has two metering units that are installed beside each other. The two units are identical and are installed mirrored to each other. Each of them is run by a 12 V electric gear motor. Both units are regulated via ISOBUS.



NOTE!

The scope of delivery of this implement includes a separate operating manual for the ISOBUS control box.

Instructions for general handling of the control box can be found in this operating manual. Special settings for the XD 4200 M1 can be found in the operating manual for the ISOBUS system.

The fan is driven by a hydraulic motor, which is controlled via a valve. The desired air quantity and working width are set via the fan speed.

The implement also has a speed sensor in the fan for monitoring as standard equipment, as well as two fill level sensors, one pressure tapping point in the hopper, and two pressure tapping points on the metering units.



TIP!

The speed of the seeding shafts can be regulated by different sensors based on the speed. These sensors are available from APV as accessories.

6.2 MOUNTING ON A SELF-PROPELLED MACHINE

Mounting of the XD 4200 M1 on a self-propelled machine is performed in an empty state and by qualified specialist personnel. The procedure is as follows:

- The lid and the charging sieve are opened.
- The supplied four carrying straps are attached to the loading hooks.
- The seeder/spreader is placed on the carrier of the self-propelled machine.
- The implement is bolted onto the carrier with the four counter plates and 4 M20 bolts respectively.



Figure 2

The hole pattern of the counter plate can be seen under Point 9.



CAUTION!

To mount the XD 4200 M1 on a self-propelled machine, it must be ensured that the machine is capable of carrying a load of max. 5 tonnes! If this is not the case, both implements can be damaged!

6.3 INSTALLATION OF THE DISPERSION PLATES

The desired number of dispersion plates is installed on the existing linkage of the self-propelled machine.



NOTE!

It must be ensured that the number of dispersion plates corresponds to the number of outlets.

The following points must be noted for installation:

- The dispersion plates must be distributed evenly across the entire width of the implement (max. 150 cm)!
- The dispersion plates must be installed with a distance of approx. 75 cm from the soil to be worked!
- The dispersion plates on the linkage must be installed vertically (90°) (see Figure 3).



Figure 3

6.4 INSTALLATION OF THE SEED HOSES AND TUBES

Seed hoses with an internal diameter of 50 mm or seed tubes with an external diameter of 50 mm must be attached on the linkage of the self-propelled machine using cable ties or hose clamps. The following must be observed when laying:

- Flexible hoses must be used at the folding points, otherwise tubes should be preferred.
- Only seed hoses are installed in the dispersion plates. They must discharge perpendicularly (90°) into the dispersion plates.
- The hoses/tubes must never have a tapered cross section.
- Tight bending radii or kinking of the hoses must be avoided.
- The transitions between tubes and hoses must always be checked for tight fit before beginning operation.
- Unnecessary upward gradients in the hose laying must be avoided.

6.5 COVER



CAUTION!

Rotating and installing or removing the lid may only be performed by qualified specialist personnel with the drive switched off, the motor at a standstill and the implement is disconnected from the towing vehicle!

The lid can be installed rotated by 180° without additional material, so that the lid can be folded open on the opposite side of the hopper (see Figure 4).

The holes for the hinges were made identical to the holes of the handles for this purpose.

For this reason, proceed as follows to rotate the lid:

- The lid is opened.
- The three plastic bearings on the shaft are opened (see Figure 6).
- The hopper lid must be secured to prevent accidental closing or falling down.
- The gas pressure cylinder and the springs of the lid are screwed off.
- The bolts of the three lid hinges are unscrewed (see Figure 7).
- The hopper lid is lifted and rotated by 180°.
- The hinges and the gas pressure cylinder are installed on this side in the existing holes.
- On the other side, the shaft is installed in the existing holes.

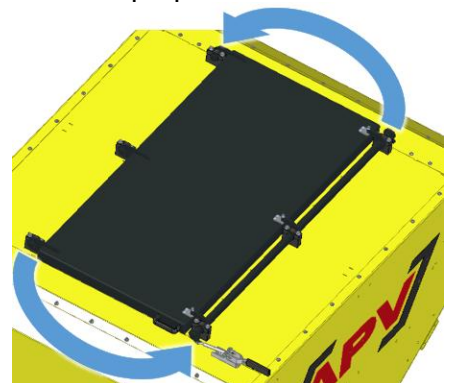


Figure 4

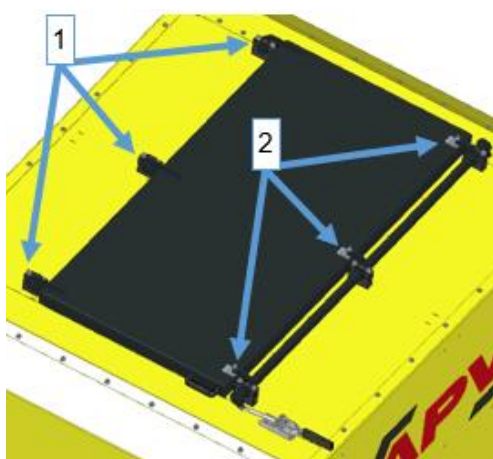


Figure 5

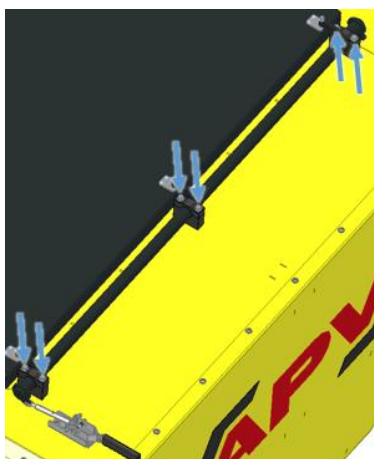


Figure 6

1: Position of the hinges
2: Position of the handles

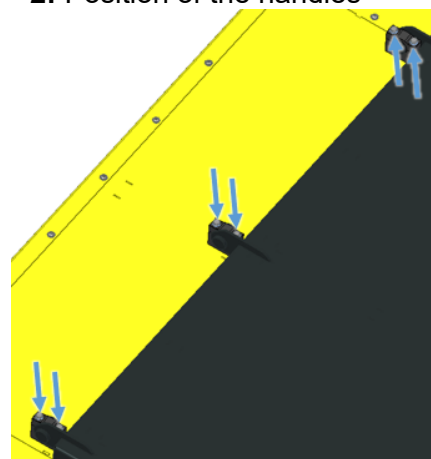


Figure 7

If leaks are found on the lid, they can be fixed using the setting screws on the shaft. Proceed as follows:

- Assess where the leaks are coming from. To do so, the lid is closed and the fan is started.
- When the leak has been found, the fan is switched back off and the lid is opened.
- Loosen the lock nuts (see Figure 8). Then the bolt is screwed in until the lid seal fits snugly against the hopper.
- Tighten the lock nuts.

At the end, another check is performed for leaks and adjustments are made if necessary.

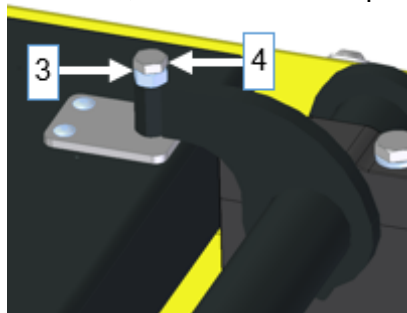


Figure 8

3: Lock nut
4: Setting screw

6.6 HYDRAULIC FAN DRIVE

6.6.1 CONNECTING THE BLOWER FAN

On the XD 4200 M1, the hydraulic fan is driven directly by the hydraulic system of the self-propelled machine.

3 hydraulic hoses are intended for this, 2 for the pressure line, 1 for the tank line. To reach the maximum rates, a volume flow of max. 125 l/min and 200 bar must be provided. See Figure 9:

- 1 return line: marked yellow, coupling plug size BG4
- 2 pressure lines: marked red, coupling plug size BG3



Figure 9

The fan must be connected to the hydraulic system of the self-propelled machine as follows (see Figure 10 and Figure 11):

- Check that the hydraulic system of the self-propelled machine and the seeder/spreader are depressurised.
- For the return line, the fitting BG4 coupling plug in compliance with the operating manual of the tractor manufacturer must be selected and taken from the implement accessories.
- The plastic cap on the return line (if equipped) is removed and replaced with the correct coupling plug.
- The return line (marked yellow) is connected to the oil tank of the self-propelled machine (strictly without reduction).
- The pressure line (marked red) is connected to the control unit of the machine.



Figure 10

- 1: Pressure line (marked red)
- 2: Coupling sleeve BG 4 (in the implement accessories)
- 3: Return line (marked yellow)
- 4: Hydraulic block with current control valve
- 5: Motor

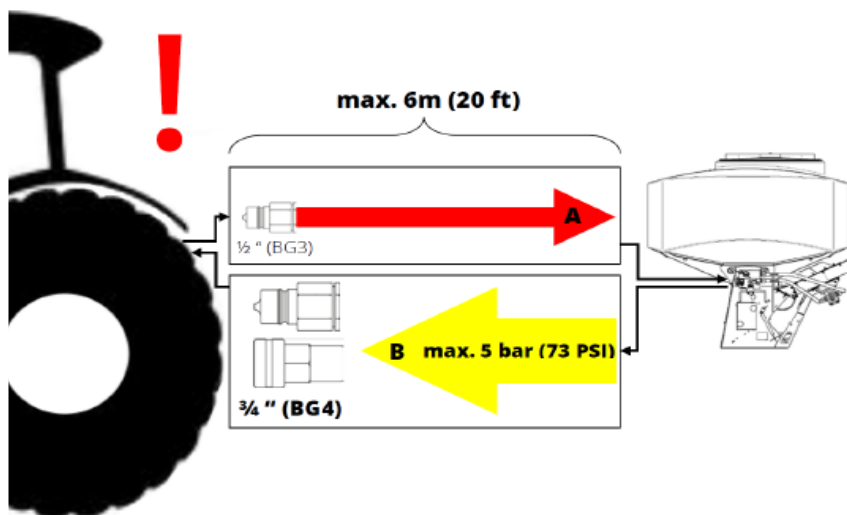


Figure 11

CAUTION!

Observe the operating manual of the self-propelled machine, so that the correct coupling plug is used for the return line.

CAUTION!

Before the implement is put into operation each time, it is mandatory to check if

- it is properly connected to the hydraulic system of the self-propelled machine.
- all settings on the self-propelled machine for the implement are correct.
- all settings on the hydraulic block of the implement are correct.

CAUTION!

After connecting the fan and before the implement is transported to the field, a functional test must be performed. While doing so, there can be nobody standing close to the seeder/spreader.

6.6.2 SETTING THE FAN SPEED

The fan produces an air current that carries the seed or spreading material through the hoses to the dispersion plates. The required air pressure and air quantity depend strongly on the seed or spreading material (type and weight), the rate, working width and speed. For this reason, it is not possible to give precise specifications for the correct fan settings, it must be determined in field trials.

CAUTION!

Guiding principle for setting the fan speed: as much air as required, but as little air as possible!

The air flow must not be set too low under any circumstances, otherwise the seed and spreading material remains in the hoses and clogs them. This can also potentially cause damage to the metering unit. In this case, the seed hoses must be removed and emptied manually.

If the air quantity is too high, the seed or spreading material can be damaged when bouncing off the spreading plate or the seed distribution is negatively affected.

The fan speed increases proportionally with the oil flow. The respective setting procedure for the oil quantity / fan speed depends on the tractor to which the seeder/spreader is connected – see Point 6.6.2.1 and 6.6.2.2. For both setting versions, the following applies:

CAUTION!

Settings are only valid for the respective utilised self-propelled machine. If a different carrier vehicle is used, the fan must be readjusted.

Correct adjustment is essential to prevent possible seeding errors when the speed is too slow or damage to the fan when the speed is too fast!

A measuring strip is applied on the hydraulic motor with a scale from 71° to 110°C – see Figure 12. The respective temperature range on the measuring strip turns black according to the temperature on the hydraulic motor.

The motor can be operated only up to max. 80°C, otherwise there can be damage to the hydraulic motor seal.

If the temperature is exceeded anyway, it is mandatory to check the seal visually for damage, and the entire implement must be checked for oil leaks.

If the seal is damaged, it must be replaced without delay and the entire implement must be cleaned from oil.

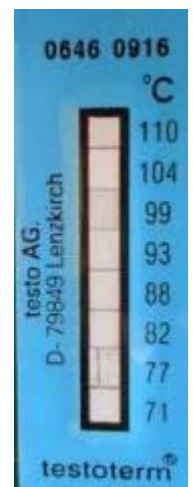


Figure 12

6.6.2.1 OIL QUANTITY CANNOT BE SET

On machines with constant pressure pump or on which the oil quantity cannot be set manually, the fan speed is adjusted as follows:

- The flow control valve of the seeder/spreader is completely closed – see Figure 13.
- The control unit of the self-propelled machine is switched on.
- The motor speed of the machine is increased to the speed required for field operation.
- The flow control valve is opened.
- The fan speed is monitored on the Control Box of the seeder/spreader.
- The motor speed of the machine is readjusted if necessary to reach the required fan speed.



Figure 13



NOTE!

The flow control valve of the seeder/spreader protects the hydraulic motor against overspeed.



NOTE!

The hydraulic pump on the tractor must supply sufficient oil so that the fan speed does not drop when the tractor motor speed drops or when other hydraulic functions are actuated.

6.6.2.2 ADJUSTABLE OIL QUANTITY

On machines with variable pump or on which the oil quantity can be adjusted manually, the fan speed is adjusted as follows:

- The two pressure lines must be connected to 2 separate control units to reach the maximum speed.
- On the two control units of the self-propelled machine, the oil quantity is set to 0 and then switched on.
- The oil quantity is slowly increased until the desired fan speed for the seeder/spreader is reached.
- The fan speed is controlled in the ISOBUS application of the seeder/spreader.
- The oil quantity for the machine is readjusted if necessary to reach the desired fan speed.



NOTE!

The hydraulic block is designed for 150 l/min – the system can overheat if the pump of the self-propelled machine produces a greater oil quantity, likewise if the machine is not equipped oil cooling.

6.7 SEEDING SHAFT

6.7.1 SELECTION OF THE SEEDING SHAFTS

The XD 4200 M1 has three seeding shafts.

The right combination of seed wheels on the seeding shafts represents the basis for optimum distribution of the seed/spreading material.

3 types of seed wheels are available from APV:

1. Flexible / coarsely serrated seed wheel 12x80 ccm = 960 ccm (Figure 14):
Application range: high spread rates, seed or spreading material with large grains (e.g.: grass mixtures, rye, barley, wheat, peas, vetch, oats, fertiliser, etc.).
2. Finely serrated seed wheel 12x16 ccm= 192 ccm (Figure 15):
Application range: low spread rates, seed or spreading material with small grains (e.g.: small seeds such as clover, phacelia, slug pellets, etc.).

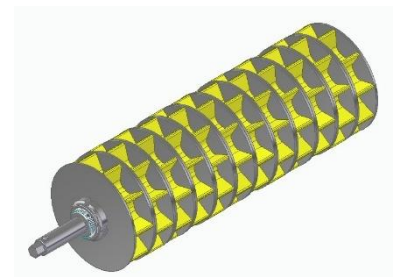


Figure 14

3. Blind seed wheel

Application range: when spread rates must be significantly reduced.

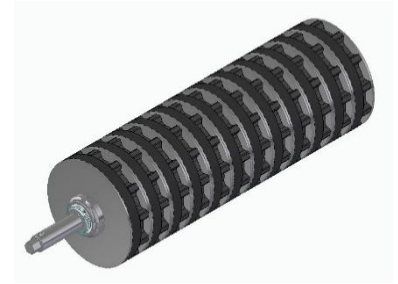


Figure 15

The seed wheels are installed on the seeding shaft as follows:

- The castle nut must be unscrewed on one side.
- The existing seed wheels are replaced with the desired seed wheels.
- The seed wheels are fastened on the seeding shaft with castle nuts.

When combining the seeding shafts, the following generally applies:

- The selection of the seed wheels depends on the rate to be spread and the grain size of the seed or spreading material (see above).
- At least 6 seed wheels must be attached to each seeding shaft and the gaps must be filled with blind seed wheels.
- Coarsely and finely serrated seed wheels should not be combined on the seeding shaft.
- If you want to reduce the spread rate, blind seed wheels are combined with coarsely or finely serrated seed wheels. The blind seed wheels should always be attached at equal intervals to ensure optimum distribution.
- Both seeding shafts on the seeder/spreader must be equipped identically.

CAUTION!

It is important to select the combination of seed wheels such that the seeding shaft speed for both motors is ideally between 20 % and 80 % (check on the terminal). This ensures good regulation and homogeneous delivery of the seed or spreading material even with ground speed-related spreading at very low or high speeds!

6.7.2 CHANGING THE SEEDING SHAFTS

The seeder/spreader has two identical metering units, each with one seeding shaft. For this reason, both seeding shafts must always be replaced when changing the seeding shaft. The procedure is described in the following.

If the hopper is full, a shutter slide must be installed in both metering units before changing the seeding shafts – see Point 6.8.3.

When the hopper is empty, the change can be started immediately.

CAUTION!

Seeding shafts can only be changed when the drive is switched off, the motor is at a standstill and the implement is disconnected from the towing vehicle! For safety reasons, always remove the ignition key from the self-propelled machine and check that the seeder/spreader is without voltage!

The seeding shaft is changed as follows:

- Unscrew the two star knob nuts that fix the bearing flange on the metering unit (see Figure 16).
- The entire bearing flange along with the seeding shaft is then pulled off (see Figure 17).
- To be able to take out the seeding shaft and the bearing flange at the same time, the cotter pin between the seeding shaft and the bearing flange must remain inserted (see Figure 18). The folding handle can be used to easily pull the bearing flange along with the seeding shaft out of the metering unit. A slight jiggling motion can facilitate this process.
- By pulling out the cotter pin, the bearing flange can be removed from the seeding shaft (see Figure 19).
- The new seeding shaft is carefully inserted into the metering unit with the groove at the front. In doing so, the groove of the seeding



Figure 16

shaft must engage in the fitted key of the drive on the opposite side (see Figure 20 and Figure 21). This is facilitated by slightly turning and jiggling the seeding shaft. To make it easier to turn the seeding shaft, the supplied socket wrench can be placed on the hexagon of the seeding shaft.

- The bearing flange is inserted on the seeding shaft and threaded pin.

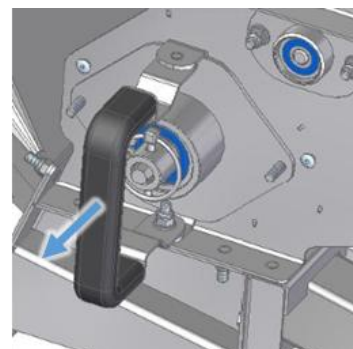


Figure 17

- The bearing flange is fixed with the star knob nuts and the cotter pin is inserted through the bearing flange and seeding shaft to achieve optimal positioning (see Figure 22).

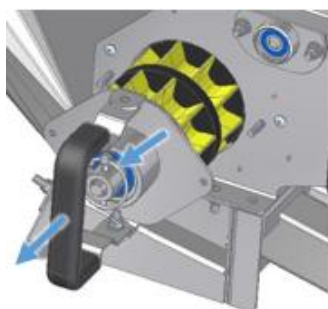


Figure 18

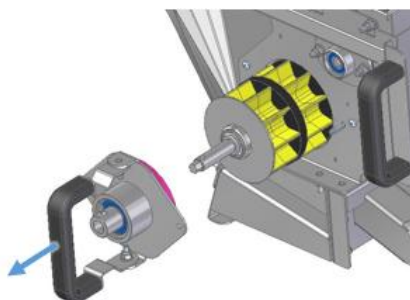


Figure 19

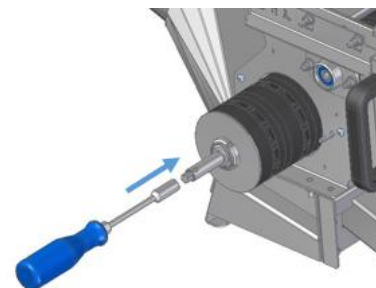


Figure 20

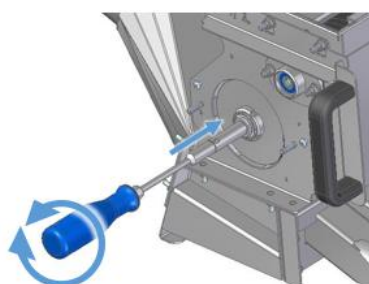


Figure 21

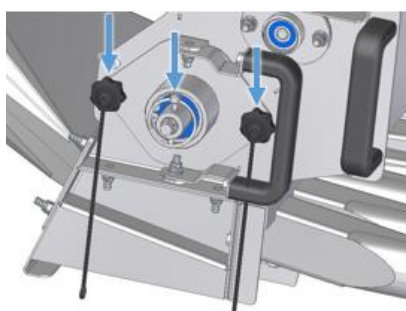


Figure 22

6.8 EMPTYING THE IMPLEMENT

6.8.1 EMPTYING THE METERING UNITS

Emptying of the metering units is necessary, e.g. when the seeding shafts must be replaced when the hopper is full. Each metering unit is emptied separately as follows:

- The shutter slide is installed as described in Point 6.8.3.
- A container is placed under the calibration device to collect the seed or spreading material.
- The fastener at the bottom of the metering unit is opened, causing the calibration flap to fold down (see Figure 23).
- In the space between the calibration flap, a container can be placed to collect the seed or spreading material.
- The area between the seeding shaft and the shutter slide is completely emptied by using the emptying function of the ISOBUS control box.
- The seeding shaft is removed or changed as described in Point 6.7.2.



Figure 23

- Then the calibration flap is closed in the reverse sequence and the shutter slide is removed as described in Point 6.8.4.

6.8.2 EMPTYING THE HOPPER

The hopper is emptied as follows:

- The first metering unit is emptied as described in Point 6.8.1 and the seeding shaft is removed.
- A container is placed under this metering unit to collect the seed or spreading material.
- The shutter slide is then carefully pulled out of the metering unit up to a maximum of half its length.
- When the container is full, the shutter slide is pushed all the way back into the metering unit and the hopper is emptied.
- The procedure is repeated until no more seed or spreading material flows out of the hopper. The container remains under the metering unit.
- The described procedure is repeated on the second metering unit.
- When the hopper of the seeder/spreader is empty, the calibration flaps are closed again in the reverse sequence, the seeding shafts installed as described in Point 6.7.2 if applicable, and the shutter slides are completely removed as described in Point 6.8.4.

6.8.3 INSTALLING THE SHUTTER SLIDE

Each metering unit has a separate shutter slide. By installing the shutter slide, the hopper is isolated from the seeding shaft, which enables work in the metering unit when the hopper is full (e.g. changing the seeding shaft).

The following description for installing the shutter slide applies for both metering units:

- The 3 bolts that are used to fasten the cover on the metering unit (see Figure 24) are loosened with the supplied socket wrench. The cover can now be easily moved by hand.
- The cover is first pushed up and then to the right or, on the other side, to the left (see Figure 25). This procedure creates a gap under the cover and the shutter slide is unlocked and is slightly tipped to the front (see Figure 26).
- The shutter slide is removed by the handle (see Figure 26).
- The shutter slide is inserted in the gap under the cover (see Figure 27), thus isolating the hopper from the seeding shaft (see Figure 28).



Figure 24

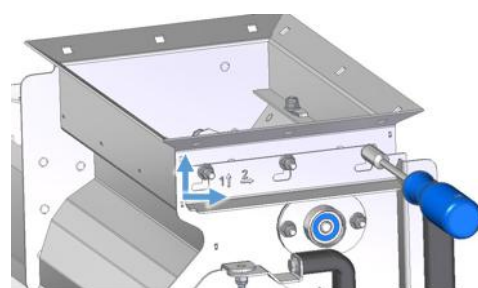


Figure 25

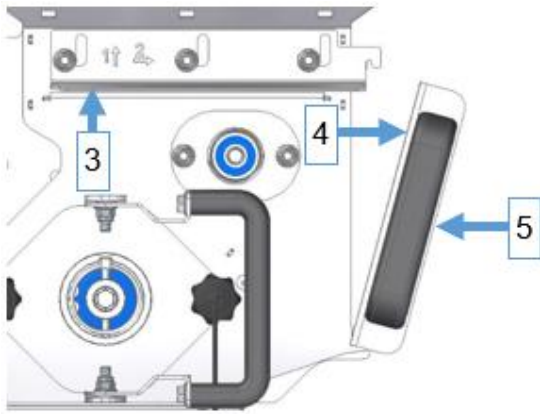


Figure 26

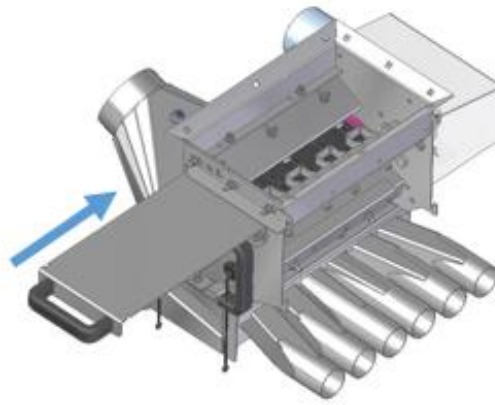


Figure 27

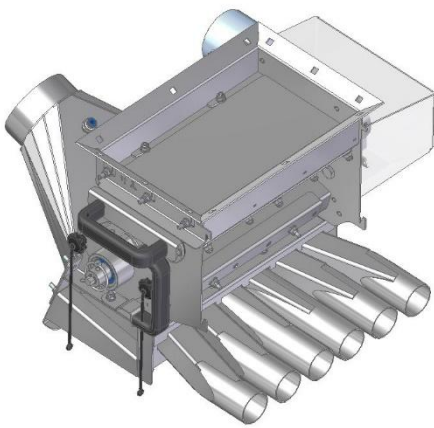


Figure 28

- 1: Bolts for the cover
- 2: Socket wrench
- 3: Gap under the cover
- 4: Shutter slide is tipped to the front
- 5: Handle for the shutter slide

6.8.4 REMOVING THE SHUTTER SLIDE

When the work in the metering unit is finished, the shutter slide is removed again. This is done in the reverse sequence to the installation manual (see 6.8.3).

It is essential to ensure that both notches on the shutter slide engage in the corresponding hooks on the handle side (see Figure 29).

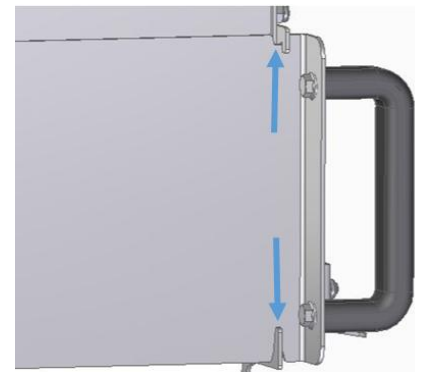


Figure 29

6.9 AGITATOR

Each metering unit has an agitator that is driven by gear wheels [1], which crush lumps upstream of the seeding shaft [2].

This agitator can optionally be switched off. This can only be done if the seed or spreading material is damaged by the agitation process.

CAUTION!

The agitator may only be disabled by qualified specialist personnel with the drive switched off, the motor at a standstill and the implement is disconnected from the towing vehicle! For safety reasons, always remove the ignition key from the self-propelled machine and check that the seeder/spreader is without voltage!

The agitator is disabled as follows:

- The 2 nuts and 2 bolts on the drive cover are unscrewed and the cover is removed (see Figure 31).
- The linch pin [3] that fastens the double gear wheel [3] on the agitator and the linch pin [4] for the seeding shaft drive are removed. (see Figure 32). Then the two gear wheels [3, 4] can be removed. The linch pin [3] for the agitator shaft can be reinstalled and the double gear wheel [3] must stay off. (see Figure 33).
- The gear wheel for the seeding shaft drive [4] must be put back on and secured with the linch pin [4].
- The cover for the drive is put back on and the 2 nuts and 2 bolts are tightened.

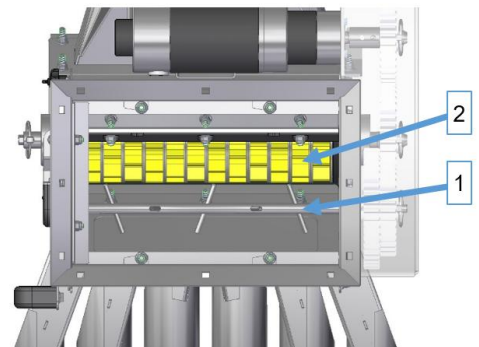


Figure 30

1: Agitator
2: Seeding shaft
3, 4, 5: Linch pin

Through this procedure, the seeding shaft rotates while the agitator remains still.

If you want to put the agitator back into operation, the double gear wheel [3] must be reinstalled.

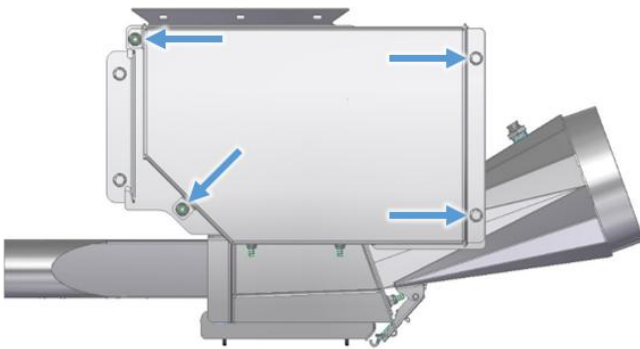


Figure 31

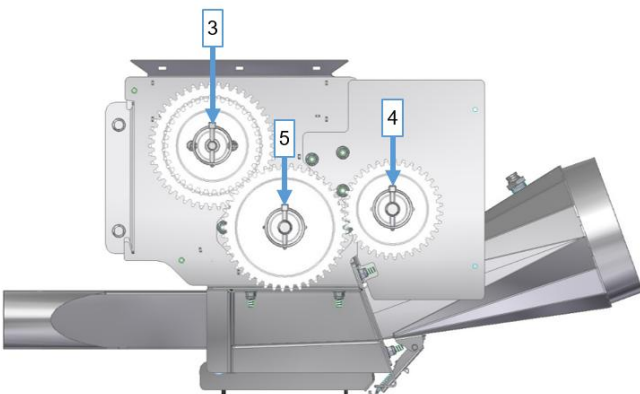


Figure 32

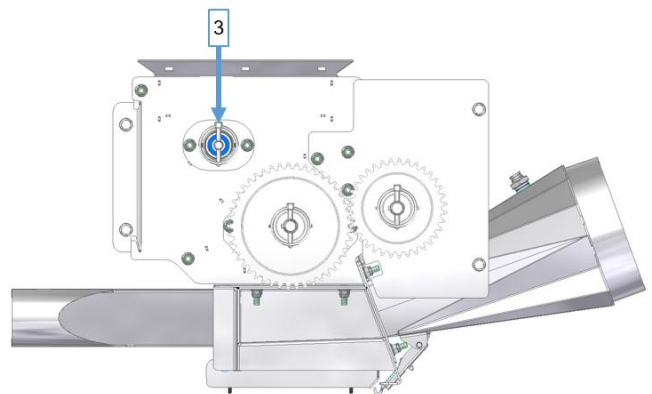


Figure 33

6.10 CHANGING THE SEEDING SHAFT GEAR RATIO

The gear ratio of the seeding shaft drive can optionally be changed. Upon delivery from the factory (see Figure 34), one gear wheel [5] (number of teeth = 35) is installed on the motor and one gear wheel [4] (number of teeth = 45) is installed for the seeding shaft, with a gear ratio (i) = 0.78. In this mode, the seeding shaft reaches a max. speed of approx. 80 rpm. If this speed is not sufficient, the gear wheels can be changed with the following procedure:

- Unscrew the 2 nuts and 2 bolts on the drive cover and take off the cover (see Figure 31).
- Remove all 3 linch pins [3, 4, 5].
- First take off the 2 individual gear wheels (motor [5] and seeding shaft [4]). Then take off the double gear wheel for the agitator [3] (see Figure 34).
- Switch the gear wheels for the motor [5] and seeding shaft [4] and secure again with the cotter pin.
- Turn the double gear wheel for the agitator [3] around so that the large gear wheel (number of teeth = 45) is meshed and the smaller gear wheel (number of teeth = 35) is not meshed (see Figure 35).
- Secure the double gear wheel with the linch pin [3] (see Figure 35).

This setting results in a gear ratio (i) = 1.29, i.e. a speed step-up ratio.

This speed step-up ratio may only be used for very free-flowing material. Otherwise, there is a risk that the seeding shaft cannot be completely filled with seed. Here, the seeding shaft can rotate at a maximum speed of 130 rpm.

At this gear ratio, the drive motor has less power reserves. As a result, the error message "Motor overload" can appear on the ISOBUS terminal. If this error message appears repeatedly, the gear ratio must be returned to its original state.

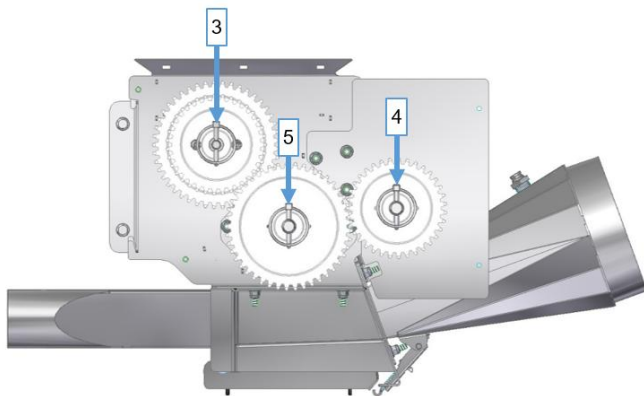


Figure 34

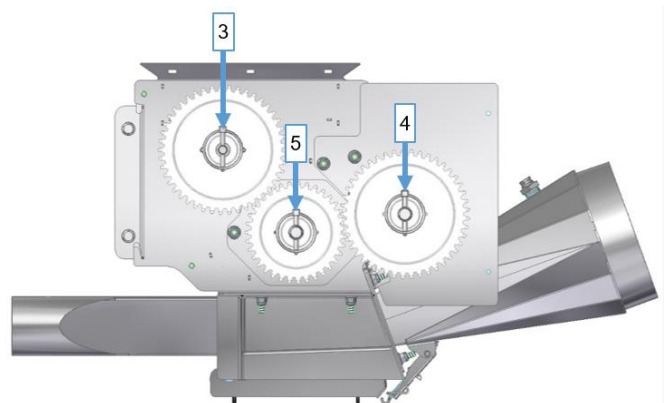


Figure 35

6.11 TOP BRUSH ADJUSTMENT

To achieve optimal scraping of the spreading material, the brushes can be individually adjusted.

CAUTION!

The position of the brushes can only be changed when the drive is switched off, the motor is at a standstill and the implement is disconnected from the towing vehicle! For safety reasons, always remove the ignition key from the self-propelled machine and check that the seeder/spreader is without voltage!

To adjust the top brush, proceed as follows:

- The hopper must be completely emptied as described in Point 6.8.2.
- The three nuts (see Figure 36), with which the support plate is fastened on the metering unit, are loosened. The top brush and a scraper lip are installed on this support plate.
- The support plate is pushed up or down as required, and the nuts are retightened (see Figure 37).
- When it is pushed up, the distance between the seeding shaft and the brush gets bigger, in addition, the inlet angle of the spreading material on the seeding shaft is increased and it is filled better with coarse spreading materials.
- It must be ensured that the support plate is then screwed back on parallel to the metering unit.
- This procedure is repeated on the second metering unit.

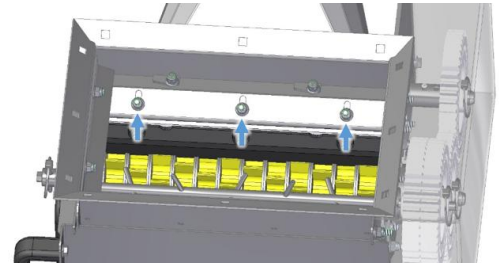


Figure 36

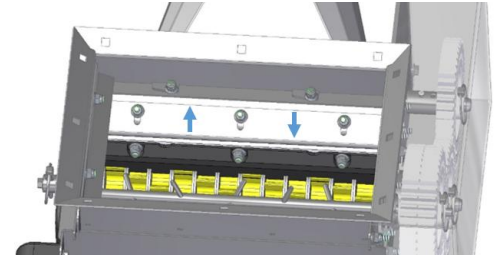


Figure 37

6.12 BOTTOM BRUSH ADJUSTMENT

To adjust the bottom brush, proceed as follows:

- The hopper must be completely emptied as described in Point 6.8.2, or the shutter slide must be installed as described in Point 6.8.3.
- The shutter slide must be taken out of its parking position.
- Above the seed outlets, there are 4 bolts with a TX25 drive. Above it, there is a fixing plate that is attached with 2 hexagonal nuts WAF10 (see Figure 38).
- First, the fixing plate must be loosened with the supplied socket wrench to be able to adjust the bottom brush (see Figure 39).
- Per default, the bottom brush is set furthest away from the seeding shaft. As a result, the 4 bolts with the TX25 are hand-tightened.
- To move the brush closer to the seeding shaft, these 4 bolts must be loosened counterclockwise. By turning to the left, the brush is moved further towards the seeding shaft and this scrapes finer seeds off better (see Figure 40).
- To adjust the brush evenly, each bolt should be turned by max. half a turn, and then the next one by the same angle. At the end, all of the bolts must have been turned by the same amount.
- One full turn moves the brush 1.8 mm closer to the seeding shaft.
- A maximum of 2 full turns are permitted.
- When the fixing plate is screwed on tight again after the adjustment, it presses the brush over the bolts with the TX25 drive further against the seeding shaft (see Figure 41).
- To readjust the brush, it should be put back to the factory setting, i.e. loosen the fixing plate, tighten the 4 TX25 bolts by hand clockwise, and then the adjustment procedure as described above can be restarted again.
- After the adjustment, the power consumption of the seeding shaft must be checked on the ISOBUS terminal, it must not exceed 10 amps at a standstill. If the error message "Seeding shaft motor overload" appears on the ISOBUS terminal during operation, the brush must be set further away from the seeding shaft again.
- This procedure is repeated on the second metering unit.

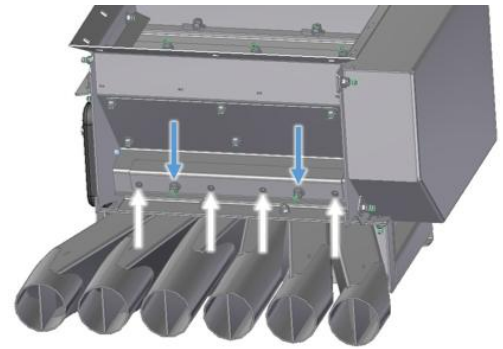


Figure 38

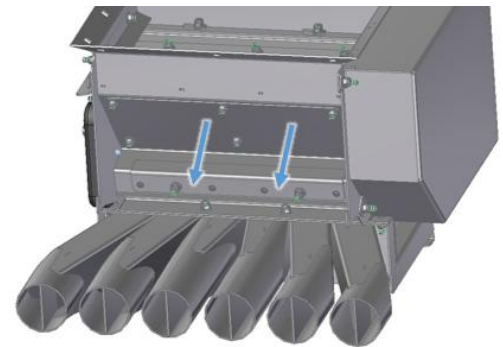


Figure 39

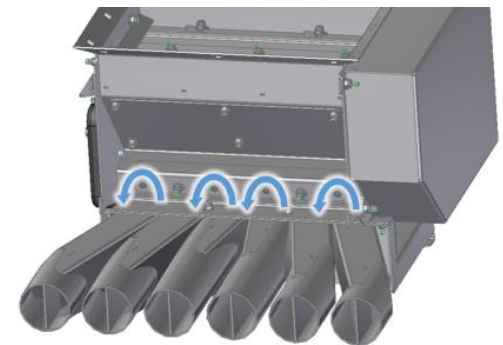


Figure 40

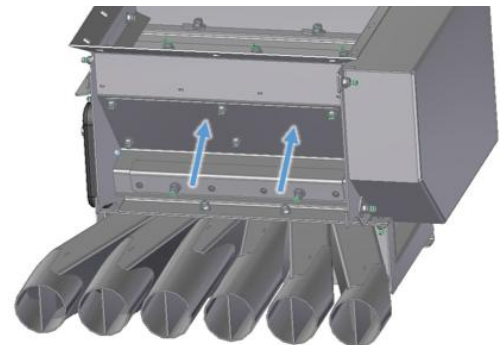


Figure 41



CAUTION!

After adjusting the brush, it is mandatory to perform a new calibration test as described in Point 6.16.

6.13 FILL LEVEL SENSOR

To monitor the fill level, a sensor is installed in the hopper. As soon as the fill level sensor is not covered with seed or spreading material, an error message is issued on the Control Box.

The height of the sensor can be adjusted as required. To do so, you must first consider how much seed and spreading material should remain in the hopper after the signal has been issued by the fill level sensor.

CAUTION!

The position of the fill level sensor can only be changed when the drive is switched off, the motor is at a standstill and the implement is disconnected from the towing vehicle! For safety reasons, always remove the ignition key from the self-propelled machine and check that the seeder/spreader is without voltage!

The position of the fill level sensor is changed as follows:

- The hopper must be completely emptied as described in Point 6.8.2.
- The two nuts that are used to fasten the sensor are loosened.
- The fill level sensor is moved along its bracket to the desired position (see Figure 42).
- The nuts are then retightened.

In addition, there is the option to adjust the intensity of the sensor for the respective seed or spreading material. The slotted screw at the rear end of the sensor is used for this.



Figure 42

6.13.1 FUNCTIONAL TEST OF THE FILL LEVEL SENSOR

The fill level sensor lights up as soon as it is covered with seed or spreading material and the ISOBUS terminal is switched on. If the fill level sensor is not covered with seed or spreading material, a message is issued on the Control Box.

For a functional test, the hopper of the seeder/spreader must be empty and the ISOBUS terminal switched on. If the hopper is empty, an error message is issued on the ISOBUS terminal. When the sensor is covered, the error message disappears.

6.14 FAN SPEED SENSOR

Thanks to the fan speed sensor, the seeding shafts can only be switched on when the hydraulic fan is running. This prevents potential blockage of the seeder/spreader if it is switched on accidentally or prematurely.

If the seeding shafts are activated although the fan is not running yet, an error message is issued on the ISOBUS terminal. The hydraulic fan must be switched on.

If the fan speed is undercut during operation, an error message appears on the ISOBUS terminal and the seeding shafts are switched off.

When the speed is increased beyond the set minimum speed and the error message is acknowledged, the seeding shafts are switched back on.

If the blower fan speed is exceeded during operation, a warning appears on the ISOBUS terminal. In this case, the seeding shafts are not switched off.



Figure 43:
Speed sensor

CAUTION!

Exceeding the maximum fan speed must be avoided at all costs to prevent damage to the hydraulic motor seal.

6.15 PRESSURE MONITORING

During operation, the pressure is monitored 1x in the hopper and 2x in the metering units using 3 measuring connections. In addition, leaks in the hopper or in the pressure monitoring, handling errors and blockages are displayed.

3 pressure gauges with a measuring range of 0 to 100 mbar are installed in the hopper (see Figure 44).

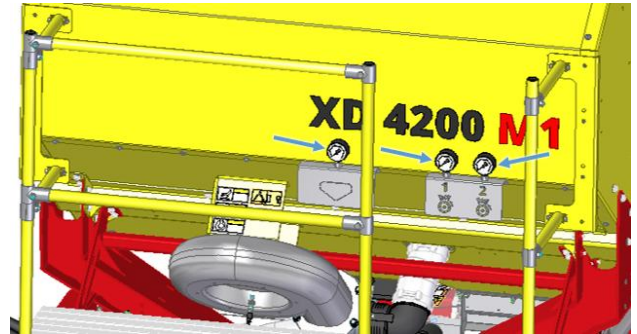


Figure 44



NOTE!

If seed or spreading material is not being conveyed, the pressure at all of the measuring points must be approximately the same with the same fan speed. Minimal deviations are possible due to temperature and humidity.

6.16 CALIBRATION TEST, WORKING WIDTHS, SPREAD RATE

The seed or spread rate depends on the speed of the seeding shafts and the forward speed when operating with sensors.

To determine the desired spread rate, a calibration test is performed on one of the two metering units before beginning operation. The second metering unit is then automatically adjusted.

The calibration test must be performed as follows:

- A container is placed under the metering unit to collect the seed or spreading material.
- The fastener at the bottom of the metering unit is opened, causing the calibration flap to fold down (see Figure 45).
- When the spread rate for the metering unit is defined, the calibration flap is closed again in the reverse sequence.
- The further course of action can be found in the operating manual for the ISOBUS system.

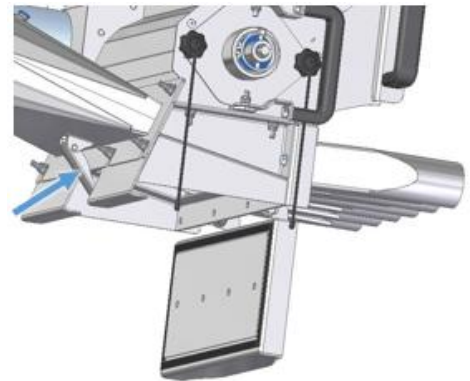


Figure 45



NOTE!

During the calibration test, the seed or spreading material must be checked for damage. If necessary, the implement settings must be adjusted accordingly.

The seeder/spreader is designed for a maximum working width of 36 m.

The spread rate is calculated with the following formula:

$$\frac{\text{Desired spread rate [kg/ha]} \times \text{forward speed [km/h]} \times \text{working width [m]}}{600} = \text{weight [kg/min]}$$

$$\text{Example: } \frac{5 \text{ [kg/ha]} \times 12 \text{ [km/h]} \times 12 \text{ [m]}}{600} = 1.2 \text{ [kg/min]}$$

**TIP!**

After beginning operation, the spread rate should be checked on the field. In particular, check the forward speed, the spread rate and distribution of the baffle plates.

**NOTE!**

We recommend repeating the calibration test after seeding an area of approx. 5 ha and also after every seed change after seeding an area of approx. 5 ha.

**CAUTION!**

It must be ensured that the self-propelled machine can provide enough hydraulic power for the fan. Otherwise, the hoses can be displaced towards the dispersion plates and cause damage to the implement!

6.17 OPERATION ON THE FIELD

For operation of the seeder/spreader, proceed as follows:

- The self-propelled machine is started.
- The Control Box is switched on.
- The fan is started using the Control Box, and wait until it runs up to speed.
- To start the seeding or spreading procedure, the gear motor is started using the Control Box (this point is omitted if a linkage or speed sensor is used). The seeding shafts rotate, the seed or spreading material is conveyed.
- If the seeding or spreading procedure must be briefly interrupted (e.g. turning around at the headlands), the gear motor is stopped using the Control Box (this point is omitted if a linkage or speed sensor is used). As a result, only the fan is still running.
- When finishing work, the fan and the gear motor are stopped using the On/Off button and the Control Box is shut down.

The following points must be observed for field operation:

- The fan must always be switched on during field operation.
- Verify the required spread rate.
- The dispersion plates must be installed as described in Point 6.3 and the seed hoses or tubes must be installed as described in Point 6.4.
- The hopper lid must be tightly sealed.
- The pressure gauges must always be checked and display equal pressure.

7 MAINTENANCE AND CARE

To maintain the implement in good condition even after a long service life, the following instructions must be observed:

7.1 GENERAL MAINTENANCE INSTRUCTIONS

- In Point 4, you will find some basic safety regulations for maintenance work.
- When replacing the hydraulic hose lines, original spare parts must be used that comply with the technical requirements of the implement manufacturer.
- The manufacturer is not liable for any unauthorised modifications and the use of components and auxiliary parts.
- Do not use a high pressure cleaner to clean bearing and hydraulic parts.
- Original parts and accessories are designed especially for the machines or implements.
- Do not clean the implement with water. Clean the implement with compressed air, however, make sure that the pressure is not too high. The paint can be damaged by cleaning with excessive pressure.
- During the winter, the implement should be protected against corrosion with an environmentally-friendly product.
- Please note that original spare parts and original accessories not supplied by us have also not been tested and approved by us. The installation or use of such products can therefore possibly negatively change or impede the constructional properties of your implement. The manufacturer rules out any liability for damages resulting from the use of non-original parts and accessories.

CAUTION!

Ensure that no water enters the hopper or the implement. The inside of the implement can only be cleaned with compressed air!

7.2 REGULAR MAINTENANCE INSTRUCTIONS

- All bolted connections should be re-tightened at the latest after 3 operating hours and again after 20 hours, and then checked regularly. Loose bolts can cause significant consequential damage, which is not covered by the warranty.
- Inspect the hydraulic hose lines at regular intervals and replace in case of damage or wear! The replacement lines must comply with the technical requirements of the implement manufacturer!
- The platform kit and its access ladder must be visually inspected on a regular basis.
- The rubber for fastening the access ladder of the platform kit must be checked regularly for wear and replaced if necessary.
- The hydraulic system must be inspected at least once a year by specialist personnel.
- Hydraulic hose lines must be replaced at the latest 6 years after their manufacturing date. The manufacturing date of the hydraulic hose lines is specified on the fittings.
- After the first 10 operating hours and subsequently every 50 operating hours, the hydraulic units, hoses and couplings as well as tube lines must be checked for leaks and the bolted connections must be tightened if necessary.
- Before every commissioning, check the hydraulic hose lines for wear, damage and ageing. Damaged or faulty parts must be immediately replaced.

7.3 REPAIRS AND SERVICE

In case of failure or damage to the implement, please contact the manufacturer. The contact data can be found in chapter 2.

8 INFORMATION ON NATURE CONSERVATION AND ENVIRONMENTAL PROTECTION

Reduction of noise pollution during use

The fan speed of the seeder/spreader must not be set higher than required to avoid unnecessary noise.

Energy-efficient use

The fan speed of the seeder/spreader may not be set higher than required. By doing so, the towing vehicle is not unnecessarily strained and fuel can be saved.

Recyclable raw materials during disposal

Many parts of the implement are made of steel or stainless steel and can be accepted and recycled at a waste disposal facility.

9 TECHNICAL DATA

Stand alone

Designation	XD 4200 M1
Working width	up to 36 m with tubing
Dimensions, closed with platform [mm] (HxWxD)	1900 x 1850 x 2950
Dimensions, closed without platform [mm] (HxWxD)	1900 x 1850 x 2450
Dimensions, open with platform [mm] (HxWxD)	2700 x 1850 x 2950
Hopper content [l]	4200
Footprint for assembly with counter plate [mm] (WxD)	1570 x 1730
Net weight [kg]	1080
Power supply	12 V / 45 A

Hydraulic supply for the fan

Max. pressure [bar]		200
Max. oil quantity [l/min]		125
Weight [kg]		60
Length of the hydraulic hoses [m]	Return line	6
	Pressure line	6
Dimensions (L x W x H) [mm]		550 x 550 x 350

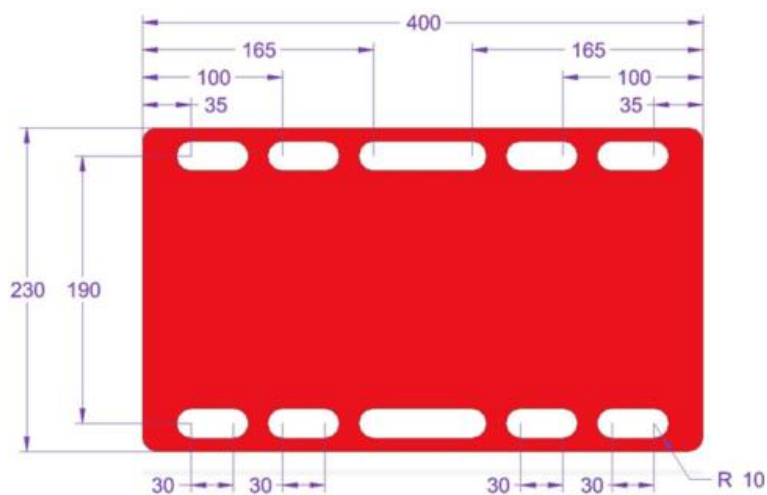


Figure 46: dimensions of the base plate, in mm

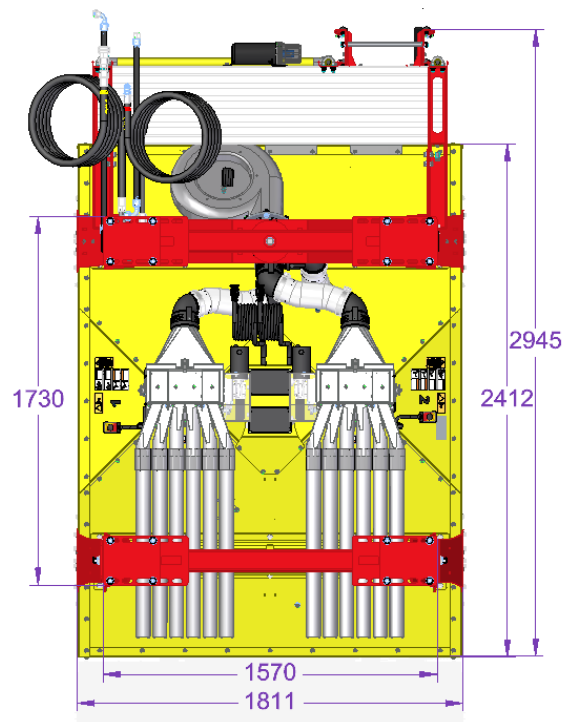


Figure 47: view from below, dimensions XD 4200 M1, in mm

10 HYDRAULIC DIAGRAM FOR HYDRAULIC FAN

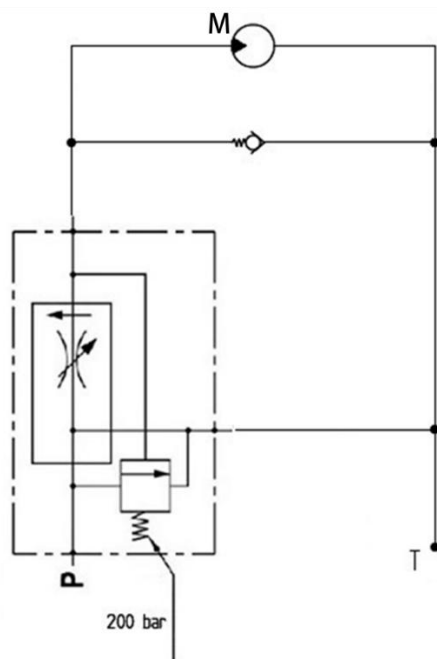


Figure 48

Qmax = 125 l/min
pmax = 200 bar

M	Motor
P	Coupling plug BG3 (marked red)
T	Coupling plug BG4 (or coupling sleeve; marked yellow)

11 CONNECTION DIAGRAMS

11.1 CONNECTION DIAGRAM FOR SEEDING SHAFT MOTOR

11.1.1 SEEDING SHAFT MOTOR 1 (MASTER)

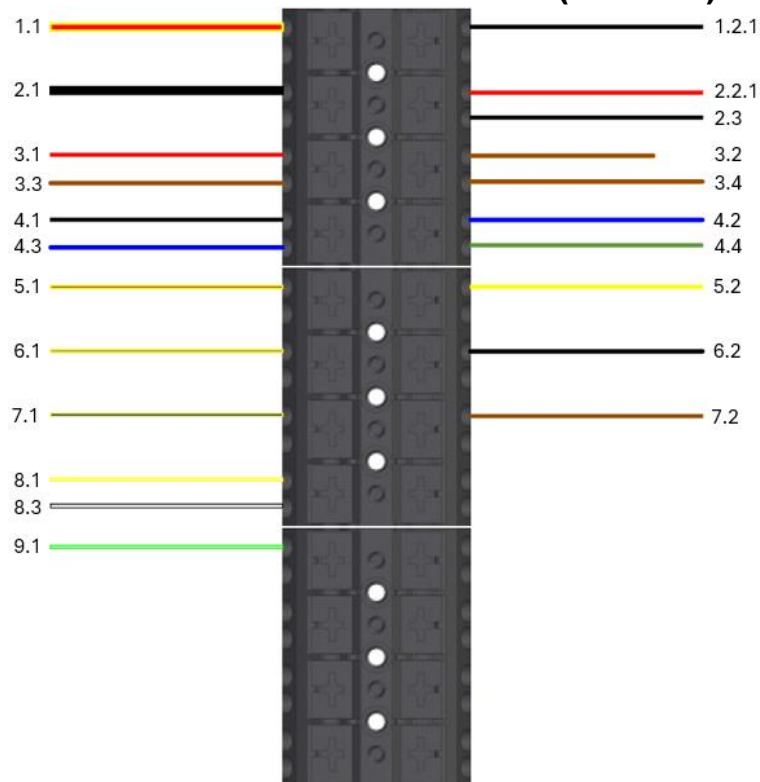


Figure 49

11.1.2 SEEDING SHAFT MOTOR 2 (SLAVE)

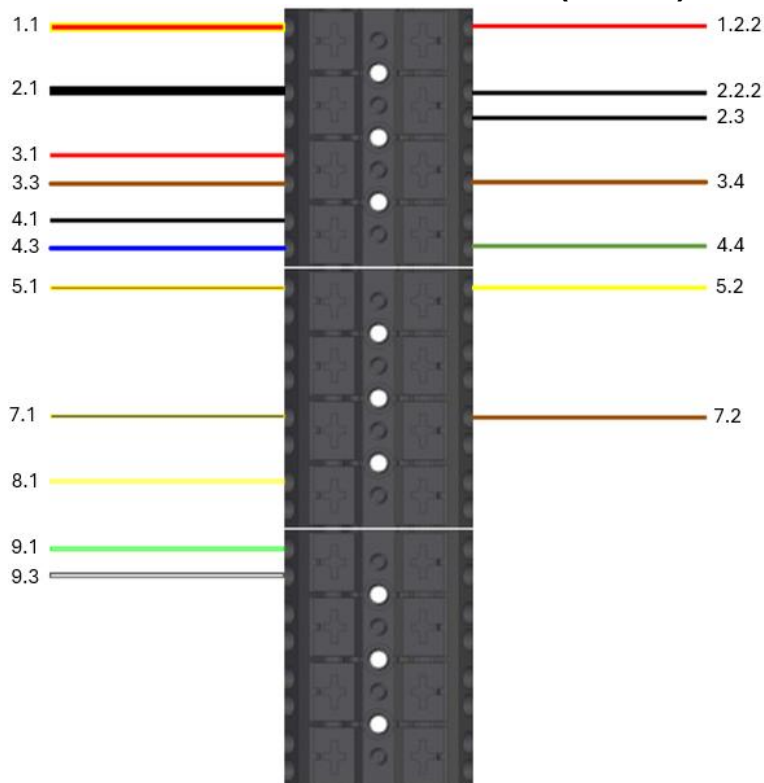
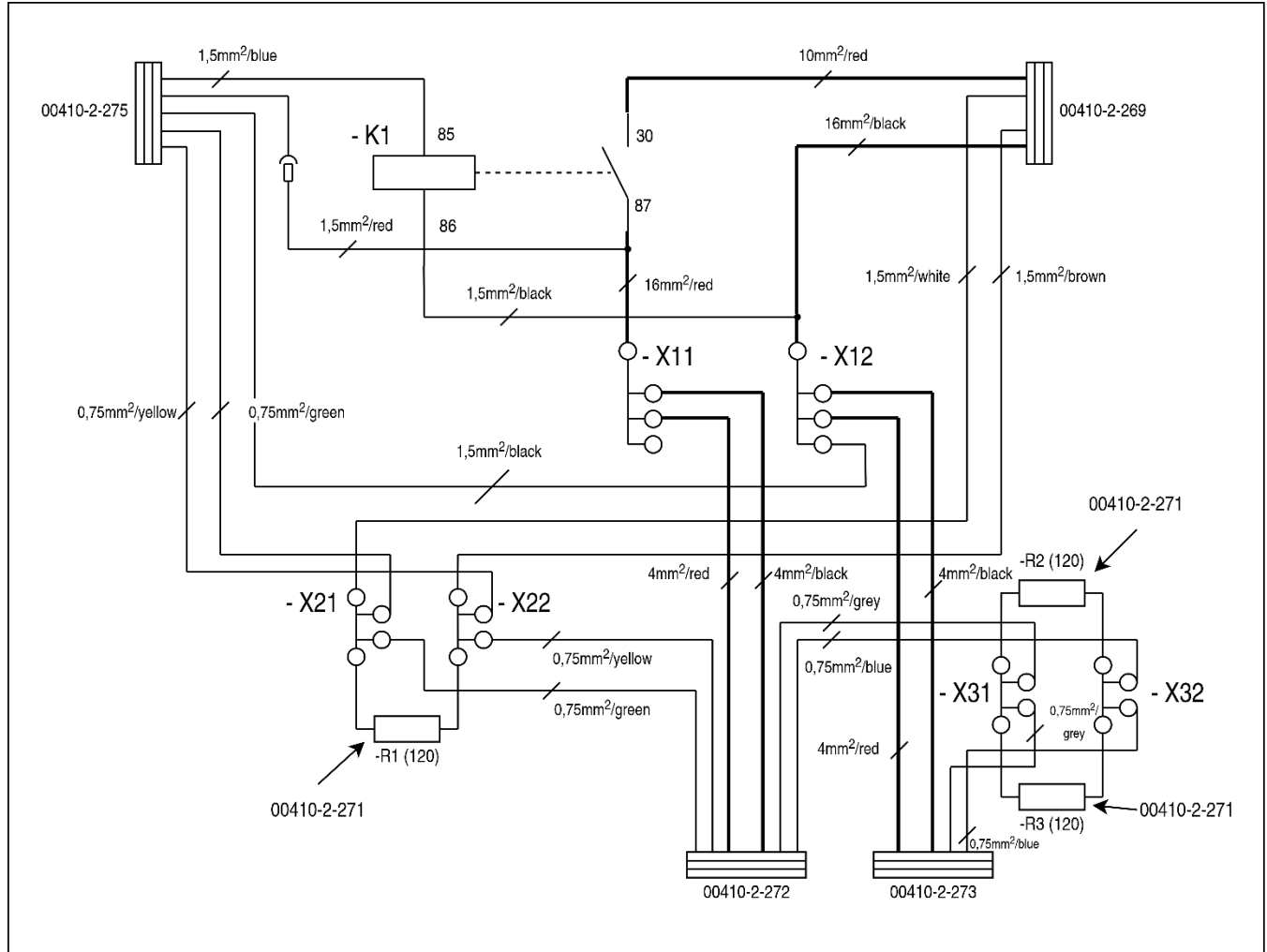


Figure 50

Number	Description	Colour	Cross-section (mm ²)	Function
1.1	Implement cable	Red-yellow	4	Seeding shaft I PWM & Seeding shaft II PWM
1.2.1	Seeding shaft motor I	black	1.5	
1.2.2	Seeding shaft motor II	red	1.5	
2.1	Implement cable	black	4	Ground
2.2.1	Seeding shaft motor I	red	1.5	
2.2.2	Seeding shaft motor II	black	1.5	
2.3	Calibration button	black	0.75	
3.1	Implement cable	red	0.75	+12 V sensor supply
3.2	Fan speed sensor	brown	0.34	
3.3	Fill level sensor I & fill level sensor II	brown	0.34	
3.4	Encoder I & encoder II	brown	0.34	
4.1	Implement cable	black	0.75	Sensor ground
4.2	Fan speed sensor	blue	0.34	
4.3	Fill level sensor I & fill level sensor II	blue	0.34	
4.4	Encoder I & encoder II	green	0.34	
5.1	Implement cable	brown-yellow	0.75	Seeding shaft speed I input & Seeding shaft speed II input
5.2	Encoder I & encoder II	yellow	0.34	
6.1	Implement cable	grey-yellow	0.75	Fan status input
6.2	Fan speed sensor	black	0.34	
7.1	Implement cable	blue-yellow	0.75	Calibration button input
7.2	Calibration button	brown	0.75	
8.1	Implement cable	white-yellow	0.75	Fill level sensor I input
8.3	Fill level sensor I	white	0.34	
9.1	Implement cable	white-green	0.75	Fill level sensor II input
9.3	Fill level sensor II	white	0.34	

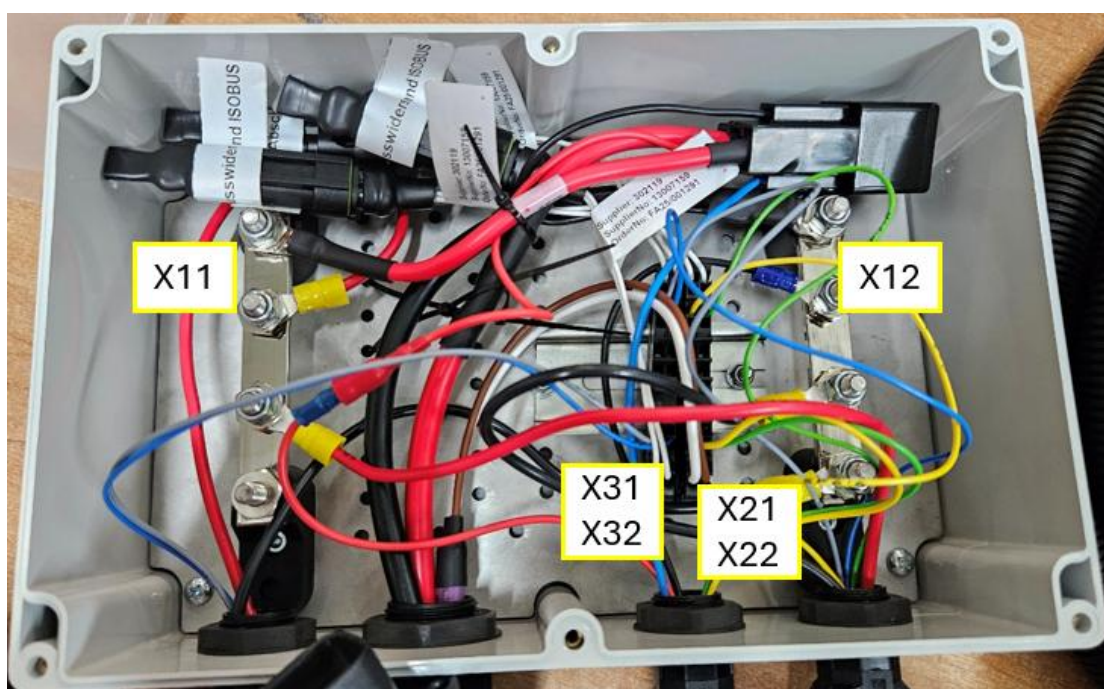
Stripping length: 10 mm

11.2 CONNECTION DIAGRAM FOR TERMINAL BOX



11.2.1 OPERATING EQUIPMENT CODE TABLE

Operating equipment	Designation	Function
Terminal	X11	Current distribution 12VDC
Terminal	X12	Ground
Terminal	X21	CAN0 – H
Terminal	X22	CAN0 – L
Terminal	X31	CAN1 – L
Terminal	X32	CAN1 – H
Resistor	R1, R2, R3	Terminating resistor 120 Ω



11.3 CALCULATION OF THE WEIGHT RATIOS FOR AXLE LOADS ON THE TRACTOR AND BALLAST WEIGHTS

If you want to drive with an implement that is attached to the 3-point linkage, you must ensure that you do not exceed the tractor's maximum permissible total weight, the permissible axle loads and tyre load capacities with the mounted implement.

The front axle of the tractor must be loaded with at least 20 % of the net weight of the tractor.

The necessary ballast weight as well as the actual axle loads can be determined using the following formulas:

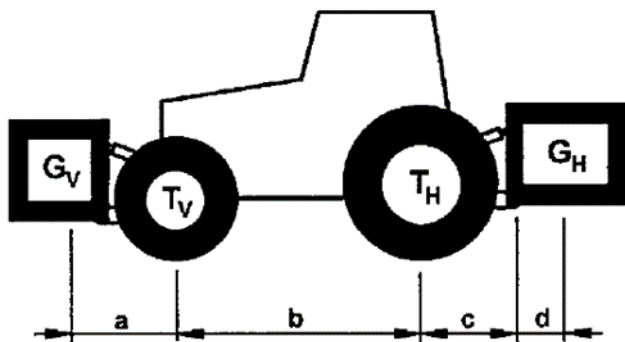


Figure 51

Specifications:

T_L Tractor net weight

T_V Front axle load of the empty tractor

T_H Rear axle load of the empty tractor

G_H Total weight of the rear-mounted implement

G_V Total weight of the front-mounted implement

a Distance from the centre of gravity of the front-mounted implement to the centre of the front axle

b Wheelbase of the tractor

c Distance from the centre of the rear axle to the centre of the lower link ball

d Distance from the centre of the lower link ball to the centre of gravity of the rear-mounted implement
(d = 97 cm)

WEIGHT CALCULATIONS

1. Calculating the minimum front ballasting on rear-mounted implements $G_{V \min}$:

$$G_{V \min} = \frac{G_H \cdot (c + d) - T_V \cdot b + 0,2 \cdot T_L \cdot b}{a + b}$$

This result is entered in the table under Point 11.4.

2. Calculation of the minimum rear ballasting for front-mounted implements $G_{H \min}$:

$$G_{H \min} = \frac{G_V \cdot a - T_H \cdot b + 0,45 \cdot T_L \cdot b}{b + c + d}$$

This result is also entered in the table under Point 11.4.

3. Calculation of the actual front axle load $T_{V \text{tat}}$:

If the required minimum front ballast ($G_{V \min}$) is not reached with the front-mounted implement (G_V), the weight of the front-mounted implement must be increased to the weight of the minimum front ballast!

$$T_{V \text{tat}} = \frac{G_V \cdot (a + b) + T_V \cdot b - G_H \cdot (c + d)}{b}$$

Now enter the calculated actual front axle load and the permissible front axle load specified in the tractor operating manual in the table under Point 11.4.

4. Calculation of the actual total weight G_{tat} :

If the required minimum rear ballast (GH) is not reached with the rear-mounted implement (GH min), the weight of the rear-mounted implement must be increased to the weight of the minimum rear ballast!

$$G_{tat} = G_V + T_L + G_H$$

Now enter the calculated total weight and the permissible total weight specified in the tractor operating manual in the table under Point 11.4.

5. Calculation of the actual rear axle load $T_{H\ tat}$:

$$T_{H\ tat} = G_{tat} - T_{V\ tat}$$

Now enter the calculated actual rear axle load and the permissible rear axle load specified in the tractor operating manual in the table under Point 11.4.

6. Tyre load capacity:

Enter the doubled value (two tyres) for the permissible tyre load capacity (see e.g. tyre manufacturer documents) in the table under Point 11.4.

11.4 TABLE FOR THE WEIGHT RATIOS

	Actual value acc. to calculation		Permissible value acc. to operating manual		Double the permissible tyre load capacity (2 tyres)
Minimum ballast front/rear	kg				
Total weight	kg	≤	kg	≤	kg
Front axle load	kg	≤	kg	≤	kg
Rear axle load	kg	≤	kg	≤	kg



CAUTION!

The minimum ballast must be attached to the tractor as a mounted implement or ballast weight!
The calculated values may not be higher than the permissible values!

12 DECOMMISSIONING, STORAGE AND DISPOSAL

12.1 DECOMMISSIONING THE IMPLEMENT

To ensure that the seeder/spreader remains fully functional even if it is out of operation for longer periods of time, it is important to take precautions for decommissioning: :

- Double-check that the hydraulic system is depressurised.
- Completely remove the seed or spreading material from the implement.
- Clean the implement inside and out.
- Store the implement in a dry place to prevent the formation of germs inside the implement.

12.2 STORAGE OF THE IMPLEMENT

For storage of the seeder/spreader, observe the following:

- The implement must be stored in a dry place protected from weather conditions on level and solid ground to ensure that it remains functional even if it is stored for a longer period of time.
- Decommission the implement as described in Point 12.1.
- Secure the implement against falling over or rolling away.
- Nothing may be deposited or stored on the implement.
- The implement must always be parked and stored in a secure area, to prevent unauthorised operation.

12.3 DISPOSAL

Disposal of the implement must be performed according to the local disposal regulations for machines.

13 ACCESSORIES

13.1 CABLE EXTENSION 5 M (6-PIN)

This cable extension is required when the soil tillage implement is longer than the 6 m cable installed ex-factory, or to allow practical routing of the cable.

Order number:
00410-2-015



Figure 52

13.2 CABLE EXTENSION 2 M (6-PIN)

This cable extension is required when the soil tillage implement is longer than the 6 m cable installed ex-factory, or to allow practical routing of the cable.

Order number:
00410-2-133



Figure 53

13.3 SEEDING SHAFT 1880 CCM

Application range: very high spread rates for fertiliser

Order number:
15000-2-224

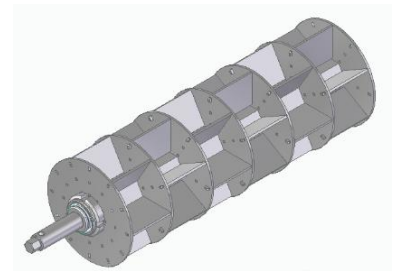


Figure 54

13.4 CHARGING SIEVE (NOT AN ACCESSORY – PERMANENTLY INSTALLED)

CAUTION!

Installing and removing the charging sieve may only be performed by qualified specialist personnel with the drive switched off, the motor at a standstill and the implement is disconnected from the towing vehicle!

A charging sieve is installed under the hopper lid (see Figure 55). The sieve is pivot-mounted and can be folded out for maintenance work (see Figure 56). To open the screen, a bolt must be removed (see Figure 57), which must be fastened in the intended hole again after the maintenance work.



Figure 55

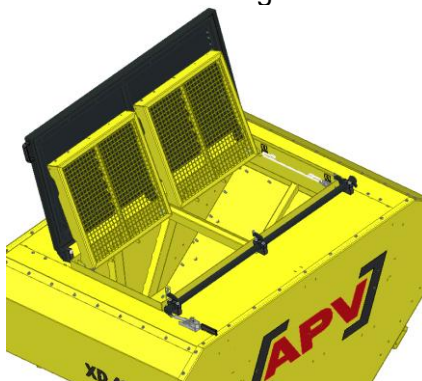


Figure 56



Figure 57

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NOTES



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